2. CONDUCTING THE PA INVESTIGATION

The investigative portion of the PA primarily involves collecting and reviewing readily available information concerning the site and its surroundings. Figure 2-1 displays a checklist summarizing the type of information needed, divided into general categories that roughly correspond to the structure of the PA. For example, the first type of data to collect and review concerns the general nature of the site -- such things as location, ownership history, type of site operations, whether it is active or inactive, size of the site, setting, and predominant land uses in the vicinity. After collecting this basic information you then examine the site in more detail and review data that concern specific waste sources and potential threats posed through each pathway.

Become familiar with the checklist of information needs before initiating data collection efforts. Knowing the information needs at the outset helps focus attention on those pieces of information that are relevant and necessary to assess the threat to human health and the environment, enhancing the efficiency of completing the task. Figure 2-1 can also be used as a checklist to keep track of data that have been collected and to identify remaining information needs. Two other PA information acquisition tools are available:

- Appendix B of this document provides a general listing of PA information sources with brief descriptions of the types of information each source contains and the particular aspect of the PA that the information supports. In addition, Appendix B contains a cross-referenced listing of data sources organized by PA factors.

- "Site Assessment Information Directory" (available from EPA) contains a much more detailed compilation of PA data sources, including names, addresses, and telephone numbers of agencies that can provide site assessment information.

The scope of the investigative portion of the PA is somewhat limited. Specific components are:

- Verify the site name and location (i.e., ensure that the site exists, and is not a duplicate or "alias" of another site)

- Collect and review readily available file information

- Determine CERCLA eligibility.

- Collect "desktop" data.

- Conduct site reconnaissance.

- Identify the need for emergency response.

- Collect any additional information needed to develop the PA score.

Section 3 provides more detail on factor-by-factor data collection and evaluation to develop a site score. Reporting PA results is covered in Section 4, and reviewing results is outlined in Section 5.

Figure 2-1
Checklist of PA Information Needs

GENERAL SITE INFORMATION

- ☐ Site Name and Location
- ☐ CERCLIS ID Number
- ☐ Type of Facility
- ☐ Type of Ownership
- ☐ Site Status (active/inactive)
- ☐ Years of Operation
- ☐ Owner/Operator Information
- ☐ Operational History
- ☐ Environmental Setting
- ☐ Approximate Size of Site
- ☐ Latitude/Longitude
- ☐ Site Sketch

SOURCE AND WASTE CHARACTERISTICS

- ☐ Source Types and Locations
- ☐ Size of Sources (dimensions)
- ☐ Waste Types and Quantities
- ☐ Hazardous Substances Present

GROUND WATER USE AND CHARACTERISTICS

- ☐ General Stratigraphy and Hydrogeology
- ☐ Presence of Karst Terrain
- ☐ Depth to Shallowest Aquifer
- ☐ Private Wells Within 4 Miles (locations, populations served)
- ☐ Municipal Wells Within 4 Miles (locations, populations served, blended systems)
- ☐ Distance to Nearest Drinking Water Well
- ☐ Wellhead Protection Areas

SURFACE WATER USE AND CHARACTERISTICS

- ☐ Flood Frequency at Site
- ☐ Distance to Nearest Surface Water
- ☐ Surface Water Body Types Within 15 Downstream Miles
- ☐ Surface Water Flow Characteristics Within 15 Downstream Miles
- ☐ Drinking Water Intakes Within 15 Downstream Miles (locations, populations served, blended systems)
- ☐ Fisheries Within 15 Downstream Miles
- ☐ Sensitive Environments and Wetlands Within 15 Downstream Miles

SOIL EXPOSURE CHARACTERISTICS

- ☐ Number of People Living Within 200 Feet
- ☐ Schools or Day Care Within 200 Feet (enrollment)
- ☐ Populations Within 1 Mile
- ☐ Number of Workers at Facility
- ☐ Locations of Terrestrial Sensitive Environments

AIR PATHWAY CHARACTERISTICS

- ☐ Populations Within 4 Miles
- ☐ Distance to Nearest Individual
- ☐ Locations of Sensitive Environments Within 4 Miles
- ☐ Acreage of Wetlands Within 4 Miles

2.1 INITIATING THE INVESTIGATION

As the first step in the site evaluation and screening process, PAs are performed on a wide variety of sites. PA sites may be abandoned or active; they may be large operating facilities or small areas where spills or illegal disposal of hazardous wastes has occurred. Significant amounts of information concerning past operations will be available for some sites; for others, information will be limited. You may be assigned to perform a PA on a site that is already under the authority of another environmental statute, or a site whose location you cannot verify. The structured PA approach described in this document applies to the majority of sites and the types of information typically available.

2.1.1 CERCLIS

The NCP requires that a PA be conducted on each site entered into CERCLIS. Potential hazardous waste sites identified by the Superfund program, or reported through citizen complaints or referrals from other agencies, are entered into CERCLIS. As sites progress through the Superfund program -- from PA through remediation -- EPA updates the information in CERCLIS.

CERCLIS contains administrative information and the site name, address, zip code, county code, latitude/longitude coordinates, date discovered, and date and type of any previous site assessment activity. CERCLIS information is updated regularly and is available from hardcopy printouts at EPA Regional and State environmental agency offices.

Verify the physical existence of the site. Because site information is not generally screened before entry into CERCLIS, nonexistent sites or duplicate site names may be encountered. In the past, a small percentage of sites entered into CERCLIS proved to be "non-sites" upon investigation, when no facility matched the site name and address listed as the site location. In addition, sites may be mistakenly entered into CERCLIS more than once. Therefore, verify the site name and cross-reference it against other entries in CERCLIS to ensure it is not a duplicate entry. Be sure to cross-check using the CERCLIS ID number, not just the site name, because distinct sites can have similar or even the same names. The CERCLIS ID number is a unique identifier for each site. Also verify the address of the site from a local street map. From the map you can begin to get an idea of the site setting.

Some sites in CERCLIS have also-known-as (aka) designations or "aliases." As a site progresses from discovery at the local stage through investigation at the Federal level, its name may be changed to be more descriptive (for example, Longmeadow Dump may be changed to Former Longmeadow Municipal Landfill). Much of your data collection effort will involve accessing State and local agency files, which may list the site under an alternative name. Determining the different names by which a site is known is necessary to complete a comprehensive file search. CERCLIS provides listings of all known aliases for sites entered.

Useful information concerning local geology/hydrology and general site environs (e.g., wetlands, other sensitive environments, local drinking water supply sources) may be obtained from the files of nearby sites previously investigated under CERCLA. Accessing this information may reduce duplication of effort and may also provide names and phone numbers of agencies and individuals you can contact to obtain additional information. CERCLIS can be used to identify nearby sites using zip code, latitude/longitude, or county identifiers. Your office may have additional in-house tracking systems or printouts that list completed investigations.

2.1.2 HWDMS

The Hazardous Waste Data Management System (HWDMS) is another EPA database that lists all known hazardous waste producers in each EPA Region. HWDMS contains general site characteristics information including type of ownership, operational status (i.e., active or inactive), type of facility, Resource Conservation and Recovery Act (RCRA) status, types of permits held, methods of waste disposal, and some waste quantity information, If HWDMS printouts are not available in-house, they are available at EPA Regional offices. The quality of HWDMS data depends on the frequency of updates. Therefore, supplement any information obtained with additional information from your review of file materials and discussions with EPA personnel (Section 2.3).

2.2 DETERMINING CERCLA ELIGIBILITY

The next step in the PA process is to collect and review readily available file information (discussed in Section 2.3) and investigate the site's CERCLA eligibility. Because site screening is not generally performed prior to CERCLIS entry, some sites entered into CERCLIS may be ineligible for CERCLA response for statutory and/or policy reasons. For example, EPA policy has generally been to respond under the RCRA program to sites subject to the corrective action authorities of RCRA Subtitle C, thus conserving CERCLA resources. In other cases, CERCLA excludes certain types of releases and wastes.

Hazardous substances, pollutants, and contaminants eligible for CERCLA response are defined in CERCLA Sections 101(14) and 101(33). These include a variety of substances identified in specific sections of the Federal Water Pollution Control Act, the Solid Waste Disposal Act, the Clean Air Act, and the Toxic Substances Control Act, along with any other substance that EPA may designate.

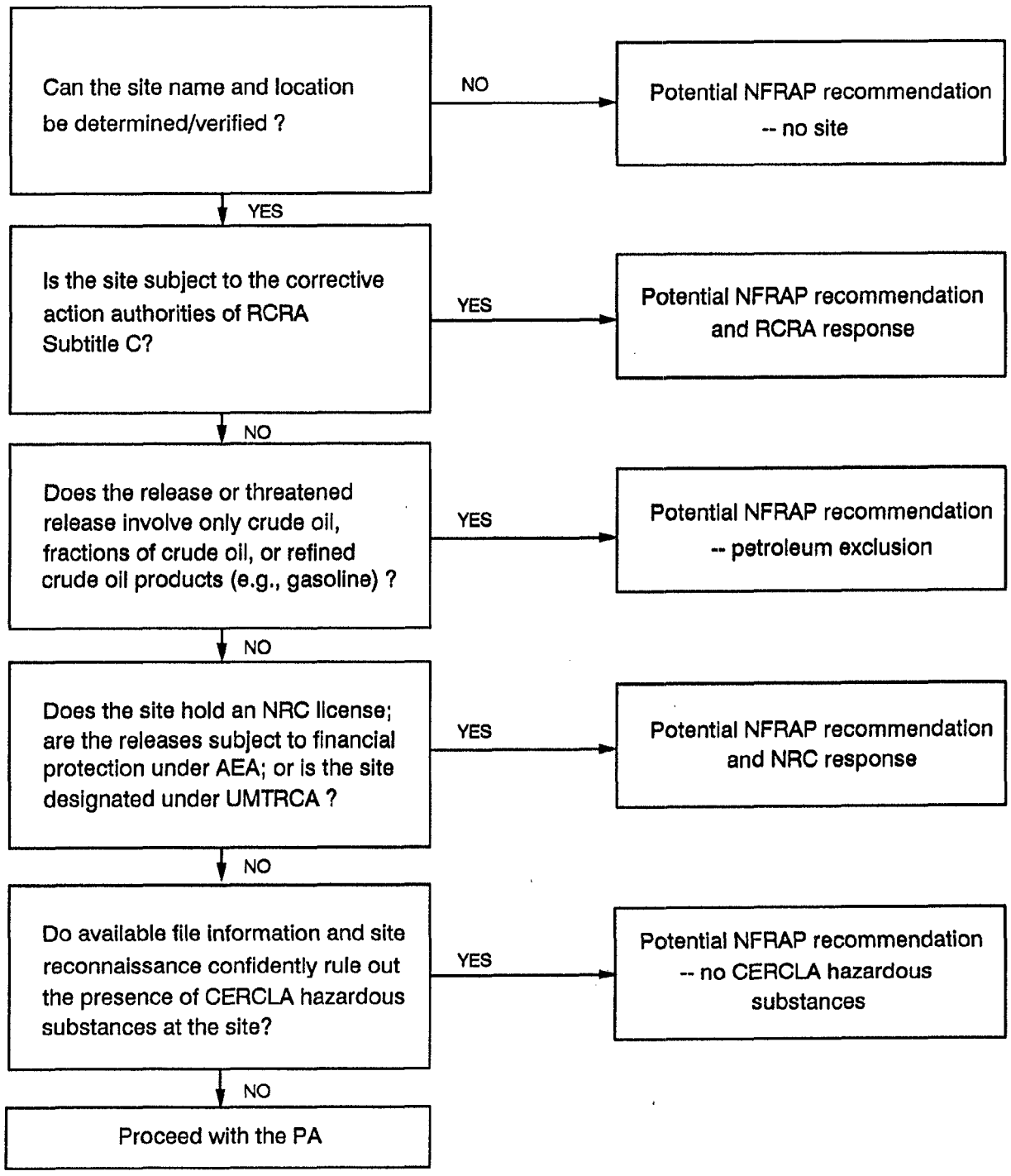
Regional EPA site assessment personnel are responsible for deciding a site's CERCLA eligibility. The PA evaluator is responsible for investigating CERCLA eligibility concerns and must inform EPA site assessment personnel of any findings indicating the site may be ineligible. CERCLA eligibility concerns should be investigated early during the PA process to avoid unnecessary expenditure of resources on sites that should be evaluated under a different program. Note that, should a site be determined ineligible for CERCLA response, the PA may be terminated by your Regional EPA site assessment contact. In such a case, abbreviated PA reporting requirements may apply (see Section 4.4).

Figure 2-2 outlines the process for determining CERCLA eligibility. Each of the categories on the decision tree is discussed in the following subsections.

2.2.1 RCRA Sites

EPA's Superfund and RCRA programs overlap. Under certain circumstances and for a variety of policy reasons, EPA will respond under CERCLA to sites that are subject to RCRA Subtitle C. See 54 FR 41000, October 4, 1989, for EPA's policy on listing RCRA sites on the NPL. As the PA investigator, you are responsible for identifying sites that may be subject to RCRA Subtitle C corrective action and informing your Regional EPA site assessment contact. Regional EPA site assessment personnel will decide whether to continue CERCLA activities or to address the site under the RCRA program.

Figure 2-2
CERCLA Eligibility Decision Tree



The types of sites subject to the corrective action authorities of RCRA Subtitle C include:

- Currently operating RCRA "Treatment, Storage, or Disposal Facilities" (TSDFs).
- Former TSDFs that operated as such for a period of time after November 19, 1980.
- RCRA "Converters" that are former "Treatment or Storage Facilities" (TSFs) which have changed their RCRA status to "Generator" or "Non-handier."
- RCRA "Non- or Late Filers."

Sites subject to RCRA Subtitle C include sites handling RCRA-defined hazardous wastes (see 40 CFR Part 261.3, Definition of Hazardous Waste) which are currently, or were for any period of time after November 19, 1980, functioning as TSDFs (see 40 CFR Part 260.10, Definitions). If the site ceased operating before November 19, 1980, it is not subject to RCRA Subtitle C and you can proceed with the PA investigation, providing no other eligibility concerns pertain.

All companies handling RCRA-defined hazardous wastes were required to notify EPA of their waste handling practices in 1980. Those that complied with this requirement were mailed a RCRA Part A Operating Permit Application. Upon submitting the Part A Application, site operators were granted interim RCRA status. Facilities with interim status were authorized to continue operations until EPA requested submittal of a Part B Operating Permit Application. Many TSFs did not pursue full operating permits, but instead changed from TSFs to either "Generator" or "Non-handier" status. These "Converter" sites are still subject to the corrective action authorities of RCRA Subtitle C because they operated as TSFs after November 19, 1980, even though they no longer do.

A second category of sites called "Non- or Late Filers" are facilities that operated as TSDFs for some period after November 19, 1980, but either never notified or delayed notifying EPA of their waste handling practices. These non or late filers are subject to RCRA Subtitle C corrective action because they were handling hazardous waste after November 19,1980.

A third category of sites, called "Protective Filers", includes facilities that received interim status as a result of filing a Part A Permit Application, but never actually operated as TSDFs. Some companies filed Part A Applications as a precautionary measure to avoid being out of compliance with the new RCRA requirements. These companies later notified EPA that they were not, in fact, TSDFs and had simply filed to protect themselves. Sites which had interim status but have proven that they never operated as TSDFs are considered protective filers and are not subject to the corrective action authorities of RCRA.

Computer printouts available from EPA list the current and past RCRA status of all sites that have identified themselves to EPA as hazardous waste handlers. Consult these printouts to determine if the site being investigated currently has RCRA status. You must also investigate historical RCRA status for facilities that operated after 1980. As discussed above, a site that is currently classified as a "Generator" may have operated for some period of time after November 19, 1980 as a TSF. If so, it is still subject to RCRA corrective action. Determining CERCLA eligibility for such sites requires additional efforts including review of historical EPA RCRA files (Section 2.3.2) and, possibly, discussions with EPA RCRA personnel. The RCRA status of the site should also be checked in the HWDMS database.

Table 2-1 presents a checklist to evaluate RCRA eligibility. Answering the questions based on your review of database and file information, as well as discussions with EPA personnel, may allow you to conclude the site's eligibility for RCRA response. However, determining whether a RCRA site meets EPA's policy for ultimate placement on the NPL may be beyond what can be achieved at the PA stage (for more information, see EPA's "Regional Quality Control Guidance for NPL Candidate

Sites," OSWER Directive 9345.1-08). If during any stage of the PA investigation you come across information that leads you to believe the site might be eligible for RCRA Subtitle C corrective action, notify your Regional EPA site assessment contact, who will discuss the situation with representatives of the RCRA program and decide whether to proceed with CERCLA investigative activities.

Table 2-1
RCRA Eligibility Checklist

1. Has the facility treated, stored, or disposed any RCRA hazardous waste for any period of time since November 19, 1980? (If the facility or site is a known "protective filer," check no.)

   ☐ Yes ☐ No

   IF THE ANSWER TO QUESTION 1 IS "NO", **STOP**; SITE IS NOT ELIGIBLE FOR RCRA RESPONSE.
   IF YES, CONTINUE WITH CHECKLIST.

2. Does the facility currently have a RCRA Part B Operating Permit or a post-closure permit?

   ☐ Yes ☐ No

3. Did the facility file a Part A Permit Application? ☐ Yes ☐ No

   If yes,

   - Does the facility currently have interim RCRA status? ☐ Yes ☐ No
   - Did the facility convert its status from TSF to "Generator" or "Non-handler"?

     ☐ Yes ☐ No

   If no,

   - Is the facility a "Non- or Late Filer"? ☐ Yes ☐ No

IF ANSWERS TO ALL QUESTIONS IN PARTS 2 AND 3 ARE "NO," THE SITE IS NOT ELIGIBLE FOR RCRA RESPONSE. IF THE ANSWER TO ANY QUESTION IS "YES," DISCUSS THE SITE WITH YOUR EPA SITE ASSESSMENT CONTACT.

2.2.2 CERCLA Petroleum Exclusion

CERCLA authorized Federal response to releases or threatened releases of "hazardous substances" and "pollutants and contaminants." CERCLA excludes "petroleum, including crude oil or any fraction thereof" from the definition of these terms. However, CERCLA does not define the specific types of petroleum products excluded.

EPA's current interpretation of the petroleum exclusion is that a release or threatened release involving solely crude oil, fractions of crude oil, or refined crude oil products (e.g., gasoline) is not eligible for CERCLA response action. However, release of a CERCLA hazardous substance (e.g., lead, polychlorinated biphenols) mixed with oil through either the addition of the hazardous substance to the oil (e.g., oil-based paint, transformer coolant), or as a result of the use of the oil (e.g., waste oil containing lead as a result of combustion) is subject to CERCLA. In addition, if a CERCLA hazardous substance and oil are commingled to the extent that cannot be practicably separated, the entire mixture is subject to CERCLA. Be aware that EPA's interpretation of the petroleum exclusion is currently under review and the policy may change in the future.

If the only type of release or threatened release involves materials that fall under the petroleum exclusion, notify your Regional EPA site assessment contact. EPA will decide whether the investigation should continue or the site should be dropped from CERCLA consideration. Some sites may have several waste sources, some eligible, others ineligible due to the petroleum exclusion. Determining which sources are eligible and ineligible for CERCLA consideration will facilitate an accurate evaluation of targets and waste quantity (discussed in Section 3).

2.2.3 Other Environmental Statutes

CERCLA precludes Superfund response actions at particular sites that fall under the jurisdiction of the Atomic Energy Act (AEA) and the Uranium Mill Tailings Radiation Control Act (UMTRCA).

Releases of source, by-product, or special nuclear material defined in AEA Section 68, Statute 923 (e.g., process ore for fresh uranium fuel) from a nuclear incident subject to the financial protection requirements of AEA are excluded from CERCLA response. Typically, this means releases from nuclear power plants licensed by the Nuclear Regulatory Commission (NRC) are the responsibility of NRC (not including facilities licensed by States or other Federal agencies that have been granted licensing authority by NRC).

Releases of source, by-product, or special nuclear material from the 22 processing sites specifically designated in UMTRCA are excluded from CERCLA response.

Also, CERCLA notification and cost recovery provisions may not be applicable to releases associated with the legal application of certain substances regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

If you conclude after reviewing available background information that response at the site might appropriately occur under any of these statutes, discuss the situation with your Regional EPA site assessment contact.

2.2.4 Sites With No Hazardous Substances

Occasionally your review of available file information will yield no evidence or indication that hazardous substances, pollutants, or contaminants were ever handled or disposed at the site. These types of sites pose no CERCLA threat to human health or the environment because they have not released, nor can they release, hazardous substances to the environment.

You must be certain that CERCLA hazardous substances are not now, or have never been, at the site before "no further action" could be recommended on this basis. Many sites have extremely limited information concerning waster sources. Simple lack of information cannot be interpreted to indicate that no hazardous waste is present or has ever been deposited at the site. Such a determination must be supported by convincing evidence, like documentation of a complete removal of all hazardous substances. In addition, you should perform a reconnaissance of the site (Section 2.5) to visually verify the lack of hazardous waste sources.

2.3 FILE SEARCHES

For many sites, a great deal of information may be available from records of State and/or local investigations, Federal and State permit applications, and Federal hazardous waste notification. These can yield information concerning site operations, waste types and quantities, regulatory history, past environmental violations, and citizen complaints. A good deal of this type of information can be obtained by reviewing Regional EPA files and State environmental agency files. Additional information concerning the site area may be obtained by reviewing in-house files for nearby sites that your office has previously investigated.

Before initiating a file search, you should be familiar with the checklist of PA information needs (Figure 2-1), particularly the general site information and source description sections. Also be familiar with the criteria lists in the PA scoresheets (Appendix A) and be aware of the types of questions you need to answer to evaluate the threat of a release from the site and potential impacts on human and environmental targets (Section 3).

2.3.1 Types of Information

Information gathered through file searches can be useful in developing professional judgement hypotheses concerning the release of hazardous substances from the site and the exposure of targets to released substances. Collect as much information concerning waste handling practices as possible. This includes information on waste containment and general housekeeping practices.

Documents of particular interest during the file search include site sketches, inspection reports, aerial photographs, permit applications, hazardous waste handling notification forms (RCRA notification forms and CERCLA 103(c) notification forms, filed by facilities to notify EPA of hazardous substances they handled), waste hauling manifests, analytical sampling results, records of citizen complaints, records of violations, and court orders.

Site sketches, maps, and aerial photographs can help identify source types and locations. Permit applications, waste hauling manifests, and Federal hazardous waste notification forms can supply data on the specific types and quantities of waste generated and/or disposed. Previous inspections can provide information on source types, past environmental impacts, and targets. Analytical results of monitoring or inspection activities can provide valuable data concerning the types of hazardous substances found at the site and possible releases. Additionally, citizen complaint reports and court orders may also provide information indicating hazardous substances have been released from the site.

While conducting file searches, always try to obtain copies of source documents. For example, an analytical sampling report prepared by the local board of health after an inspection is better than a letter report prepared at a later date that references the inspection but does not include the actual analytical data. Remember that the PA is the initial step in the site assessment process. Should the site move beyond the PA, data sources used during the PA may carry on to the Sl and could eventually be used to support placement on the NPL.

2.3.2 EPA Regional Files

Generally, the first files you will access are at Regional EPA offices. In some Regions, the EPA site assessment contact will give you the files when you receive the PA assignment, in other Regions, you may need to coordinate with the contact to gain access to all the necessary files. The PA is the first step in the Superfund site assessment process and, for most sites, you will be initiating the Superfund file for the site. However, you may be assigned a PA on a site that may have been the

subject of some Federal action such as a removal, regulatory inspection, or permit application. In these instances, Regional files may contain information that will be useful for completing the PA.

First access Regional site assessment files. These may contain useful documents such as CERCLA 103(c) notification forms, PA petitions, or reports on previous site assessment activities at the site. These documents will likely have information concerning the types of wastes disposed, general site operations, and alleged environmental impacts, possibly including information from State activities.

Next access other Regional Superfund files. For example, the site may have had a Superfund removal action (fencing the site, physical removal of hazardous wastes, closing of wells, supplying alternative drinking water, or other emergency measures). Removal program files may provide useful information concerning waste sources, types and quantities of wastes, and past environmental impacts. Coordinate with your Regional EPA site assessment contact to determine if other Superfund offices have information concerning the site being evaluated and to access those files.

You also need to research EPA offices outside the Superfund program, such as RCRA and the National Pollutant Discharge Elimination System (NPDES) program. They may have permit applications and monitoring results with information on specific waste types and quantities, sources, type of site operations, and operating status. Coordinate with your EPA site assessment contact to access and review files from other Regional programs.

2.3.3 State Environmental Agency Files

Historical files of State environmental agencies may provide information about the site, as many sites investigated under Superfund were originally discovered by or identified to a State agency. For State environmental agency personnel conducting PAs, files should be readily available. For others, the process of gaining access to State agency files varies. In some States, you can request file information over the phone and have it sent to your office. Most States, however, require prior arrangements to visit the appropriate State agency offices to review and make copies of the desired file information.

The "Site Assessment Information Directory" (available from EPA) contains the names, locations, and telephone numbers of State agencies that can provide data and information necessary for the PA investigation. For file search purposes, the principal environmental agency for the State is the best candidate. However, a single division or department within that agency is unlikely to have all of the available information for a site. For example, the State Department of Environmental Protection, as the principal environmental agency, may have a Superfund or solid waste division that has information about the site, and may also have separate RCRA and water resources divisions that have additional information.

As with Federal files, State files may contain information derived from permit applications, previous investigations of the site, or from reported environmental impacts. While reviewing State files, gather information concerning the site's operating history, specifically regarding waste types, quantities, and sources; type of site operations; ownership history; and historical waste handling and disposal practices.

2.3.4 In-House Files

Although in-house files generally will not provide information specific to the site, they too can be useful sources of information. Research the possibility that other sites in the vicinity have been investigated by your office. In-house files for such sites can provide data on local geology, hydrology, and other site environs information. In addition, valuable targets information can be

obtained, such as the locations of public drinking water supply wells or surface water intakes and the extent of municipal supply systems.

Individuals in your office who have performed investigations on sites in the general vicinity of your site are also good resources. These individuals may be able to provide recommendations for sources of information for specific data elements (e.g., the name and telephone number of an individual at the State Fish and Wildlife Department helpful in identifying fisheries and endangered species habitats).

2.4 OBTAINING "DESKTOP" INFORMATION

A comprehensive targets survey to identify human populations, sensitive environments, and fisheries potentially affected by the site is a major component of the PA. Much of this information has little to do with waste types or the facility's historical waste handling practices, and will not be found during the file searches discussed in Section 2.3. Preliminary identification of targets and related data gathering may, however, be accomplished without leaving your office (see pathway target discussions in Section 3).

Desktop data sources can provide information concerning geology underlying the site and in the immediate vicinity; location of surface water bodies, fisheries, wetlands, and sensitive environments; location of public drinking water supply wells and surface water intakes; populations served by public water supplies; and residential populations in the vicinity of the site. The following sections present more detailed information on desktop data sources.

2.4.1 Maps

Maps provide valuable information on the physical and environmental setting of the site and its associated targets. As a standard practice at the onset of the PA, obtain United States Geological Survey (USGS) 7.5-minute topographic quadrangle maps covering the 4-mile radius around the site, as well as the 15-mile surface water migration route. USGS topographic maps may be available from in-house libraries or map rooms; otherwise, they can be ordered directly from USGS or purchased from a local map store. It is a good idea to either order multiple copies or make photocopies that you can write on. Once you have received your topographic maps, splice them together (as necessary), outline the site itself, and have a draftsperson draw a series of concentric circles around the site with radii of ¼ mile, ½ mile, 1 mile, 2 miles, 3 miles, and 4 miles. This will be useful to identify and evaluate targets (Section 3).

USGS topographic maps display geographic features of the site and surrounding area. They can be used to identify the surface water migration route, nearby wetlands and sensitive environments, and the nearest resident. Topographic maps can also be used to record various types of data, by highlighting or outlining the surface water migration route, areas served by public and private water supplies, and the locations of the nearest resident and nearest well. In sparsely populated areas, the topographic map can be used to determine the population residing within each of the distance categories, by counting the houses indicated on the map in each distance category and multiplying by the average number of residents per household for the county in which the houses are located (discussed in Section 3).

National Wetlands Inventory Maps, available from the U.S. Fish and Wildlife Service (USF&WS) or USGS, delineate the boundaries of wetlands and can be used like topographic maps to specify wetlands locations, acreage, and frontage miles. Local city and county street maps can be helpful to identify schools, large office parks and business centers, recreational parks, and other potential targets near the site. Flood Insurance Rate Maps can be obtained from the Federal Emergency Management Agency (FEMA) or from local insurance offices. These maps can be used to determine

the floodplain in which the site is located. Property maps delineating historical site boundaries may be available from the community or county tax assessor's office. You may want to obtain these maps during the site reconnaissance (discussed in Section 2.5). These maps may be useful to identify areas that were once part of the site, but are not identified as such on current maps. For example, a particular parcel of land that is currently a community baseball field may have previously been owned and operated as a landfill by the facility you are investigating. Such information is valuable for identifying and characterizing sources.

2.4.2 Geologic Information

As part of the PA investigation, you need to collect information on the general stratigraphy in the vicinity of the site. Your office may have a collection of geologic references that may include the study area. Otherwise, USGS field offices can provide geologic reference materials. In addition, State geological surveys can provide useful reference documents that typically include detailed technical descriptions, stratigraphic columns, and cross-sections. This type of information can be used to develop the general description of the geologic strata and aquifer(s) underlying and in the vicinity of the site, evaluate depth to the shallowest aquifer, and provide information on the nature and properties of geologic materials between the surface and underlying aquifers.

Other related sources of information on local geology and ground water use include a variety of ground water references published by USGS and State geological surveys. Some States have extensive studies concerning ground water resources. These can provide detailed descriptions of aquifers and their uses in different regions or geographic areas. Some may even include fairly comprehensive well inventories that identify public and private well locations, uses, depths, screened intervals, static water levels, and related information.

The geology departments of local or State universities are another source of information on the geology of the area. University libraries may have studies concerning local geology, and university professors may be experts on local geology. Public water supply utilities and local well drilling companies may also provide information on geology, including depth to shallowest aquifer and composition of geologic strata in the vicinity of the site.

2.4.3 Databases and Geographic Information Systems

A variety of databases can provide information about targets. The Geographical Exposure Modeling System (GEMS) is maintained by EPA's Office of Toxic Substances and provides U.S. Bureau of the Census population data for specified distances around a point location. GEMS can be accessed online through a personal computer and modem. Your Regional EPA site assessment contact can provide information on accessing GEMS. As input, GEMS requires the geographic coordinates of the site and the distance categories for which you desire population information. This approach meshes conveniently with the PA evaluation of population in concentric distance categories around the site, out to a distance of four miles. GEMS does, however, have limitations -- particularly for the smaller distances near the site, and for sites in rural areas where populations are typically thinly distributed. Section 3.6.2 discusses the application of GEMS data in more detail.

WELLFAX is a water resource database, maintained by the National Water Well Association (NWWA). WELLFAX contains NWWA's inventory of municipal and community water supplies and provides the number of households served by public water systems, private wells, and other water supply sources. The Federal Reporting Data System (FRDS), maintained by EPA's Office of Drinking Water, contains general information including name, address, and population served by public water supply utilities using ground water or surface water.

For surface water, PATHSCAN can provide information concerning both municipal and private drinking water intakes. PATHSCAN is maintained by EPA's Office of Water Regulations and Standards.

Many States also have databases (usually maintained by environmental agencies) that can be used for preliminary identification of public drinking water supplies. Some State geological surveys maintain well log databases that can supply information concerning wells in the vicinity of your site. In addition to supporting drinking water targets evaluations, these databases can be used to compile information on the strata underlying the site and in the general area.

Many of these databases, especially those containing information on drinking water wells, are incomplete. You should not rely exclusively on such databases to determine ground water targets. Always verify information obtained from databases by contacting each community located within the target distance limit to identify drinking water supply sources. At a minimum, databases may provide the names of the different public or private water companies that you need to contact. How to contact public water utilities is discussed in Section 2.4.5. Appendix B provides a general listing of databases that can be used to gather various types of PA information; the "Site Assessment Information Directory" (available from EPA) identifies Regional and State-specific databases.

Another useful tool for gathering PA data is a geographic information system (GIS). Many offices have GIS software that integrates various types of databases to provide information concerning specific geographic areas or point locations. For example, with only the latitude/longitude coordinates for a site, you might be able to use an in-house GIS to gather population information for the area around the site, plot on a map the locations of all public drinking water wells and their service areas, and obtain geologic data. The specific types of data available will depend on the setup and structure of the GIS. The quality of the data depends on the frequency of updating, making follow-up data collection and verification advisable.

2.4.4 Aerial Photography

Historical aerial photographs of the site can identify source areas that may not be visible during a routine reconnaissance due to physical changes to the site during the years of operation (e.g., surface impoundments that have since been backfilled and paved over). Current aerial photographs will provide an overall view of the site layout that may not be available from the ground. Aerial photographs can help identify and document the location and distance to various targets, identify the surface water migration route, identify and quantify source areas, and many other applications.

Although aerial photographs can be helpful during the PA, do not expend undue effort or costs to obtain them, as most of the information they provide can be obtained from other sources as well. In certain instances, however, they may be especially helpful. For example, if site access problems prevent you from performing an effective reconnaissance (Section 2.5), or if you have very little information concerning site operations, historical aerial photographs may be able to provide information on waste disposal areas.

Good sources for aerial photographs at the PA stage are local ones, including the local tax assessor's office, local planning or zoning commission, and the State department of highways and transportation. These sources may be able to provide aerial photographs of the site and surrounding area relatively quickly and inexpensively. Other sources of aerial photographs include EPA's Environmental Monitoring Systems Laboratory (EMSL), EPA's Environmental Photographic Interpretation Center (EPIC), the U.S. Army Corps of Engineers (COE), the Soil Conservation Service (SCS) of the U.S. Department of Agriculture (USDA), and the USGS. EMSL and EPIC are the official EPA departments responsible for providing aerial photography; their main services are archival searches for current and historical aerial photographs and interpretive analyses. It is a

good practice to check turnaround time and delivery schedule for products and interpretive services from any of these sources.

2.4.5 Telephone Inquiries

During the PA, you can use the telephone to gather a great deal of information. For the ground water pathway, information concerning drinking water target populations can be obtained from phone conversations with appropriate community officials. For the surface water pathway, flow data can be acquired from USGS. In addition, the locations of sensitive environments for the surface water, air, and soil exposure pathways can be verified by contacting State fish and wildlife services and Natural Heritage Programs. Local emergency response units (e.g., fire department) may be able to provide information on the types of hazardous substances used and stored at active facilities. Before contacting outside agencies, check with your supervisor for the proper procedures and protocols to follow in identifying yourself and your reasons for making the inquiry.

The most direct means of collecting drinking water target population information for both the ground water and surface water pathways is to contact the department of public works or the town hall of each community within the target distance limit to identify the appropriate offices that can provide information on water supplies. Larger communities may have water departments that can be contacted directly. Local water officials can usually supply the necessary information, but to avoid having to repeatedly contact them, prepare a list of questions before you call to ensure collecting all required information.

You first need to determine if the community is served by a centralized water system (public or private water distribution company), private wells or surface water intakes, or a combination. You also need to identify the types (wells or surface water intakes) and locations of drinking water supply sources. The following questions are examples of what to ask water authorities about drinking water supplies:

- Does the community have a centralized drinking water supply system?
- Is it public or private?
- Is the source of drinking water ground water, surface water, or a combination of the two?
- Where are the exact locations of the drinking water supply sources (wells and intakes)?
- What are the names of the drinking water sources (e.g., Wellfield Number 1)?
- For wells:
    - How deep are the wells?
    - From which aquifer do they withdraw water?
    - Is the water system interconnected such that water from any well is capable of reaching any part of the system?
    - If so, what percent of the system's output is supplied by each well?
    - How many people are served by the drinking water system?
    - Does the system supply water to any other community?
    - Have there been any problems with ground water contamination in the area?
    - Have any wells been closed due to contamination of any kind? If so, request an explanation of the circumstances.
    - Has the ground water recently been tested (for what and results)?
    - Are there private wells located in the community or the general area?
    - What aquifer(s) do these private wells tap?
    - Can the water company provide a system distribution map?
    - Can the water company mark the location of supply wells and distribution areas on a topographic map?
    - Do neighboring communities have drinking water supply systems (ask for contacts)?

- For surface water intakes:
  - Where is each intake located?
  - What is the average flow rate of the water body from which each intake draws?
  - How many people are served by the system?
  - Is the water supply system interconnected such that water from any intake is capable of reaching any part of the system?
  - If so, what percentage of the total system's output is supplied by each intake?
  - Is the water treated prior to distribution?
  - If so, why and how?
  - Has an intake ever been closed or taken out of service due to contamination of any kind? If so, request an explanation of the circumstances.
  - Has the surface water recently been tested (for what and results)?
  - Are there private intakes located on surface water bodies in the vicinity?
  - Can the water company provide a system distribution map?
  - Can the water company mark the location of intakes and distribution areas on a topographic map?
  - Do neighboring communities have drinking water supply systems (ask for contacts)?

Sensitive environments need to be identified for the surface water, air, and soil exposure pathways. Review the sensitive environment tables in the PA scoresheets (PA Tables 5 and 7) to familiarize yourself with the descriptions of the sensitive environments that qualify for consideration. The USF&WS and State fish and wildlife services can be contacted to gather information on fisheries and habitats of endangered and threatened species. State Natural Heritage Programs are also good sources of information on sensitive environments (e.g., wetlands and critical habitats). You can contact the heritage program for the State in which the site is located and request information for the surrounding area (see EPA's "Site Assessment Information Directory" for telephone numbers).

Another source of information is the local fire or police department. SARA mandated that all facilities actively handling hazardous materials notify local emergency response units (e.g., fire department, police) of the hazardous materials stored at the facility. Local emergency response authorities may also have information concerning sources and the physical state of wastes (i.e., solids, liquids, or sludges). Such data are helpful in evaluating waste quantity, suspected releases, and targets that may be exposed to hazardous substances.

Information obtained over the telephone needs to be recorded on paper as a means of documenting the source of the information. "Teleconference notes" (telecons) or "records of communication" (ROCs), as these are known, are common references to the PA narrative report (Section 4.2). Several examples are provided in the sample PA narrative report in Appendix C. Note that telecons need not be typed; legible handwriting is acceptable. Telecons must document the following:

- Date and time of the conversation.
- Site name.
- Name, affiliation, and telephone number of the person contacted.
- Name and affiliation of the person making the contact.
- Purpose of the call and questions asked.
- Summary of the conversation and pertinent information obtained.
- Action items or follow-up activities, if any.
- Dated signature of the person making the contact.

2.5 SITE RECONNAISSANCE

The purpose of a reconnaissance is to visually observe the site and its environs and to collect additional information to assist the PA evaluation. An offsite reconnaissance is generally required;

an onsite reconnaissance may be performed, as appropriate (NCP, 40 CFR 300.420). Depending on information needs and the type of reconnaissance, activities may include an onsite visit, an offsite perimeter survey, a site environs survey, and collecting additional information from local authorities.

Under some circumstances, a site reconnaissance may not be necessary. If file searches and desktop data collection activities yield sufficient information to indicate that an SI is necessary, a reconnaissance may not be required to complete the PA; consult with your Regional EPA site assessment contact. It is usually difficult, however, to conclude that no further action is necessary without the benefit of actually observing conditions at and around the site. Exceptions may include sites that are not eligible for response under CERCLA (see Section 2.2 for discussion).

When conducting a reconnaissance, pay particular attention to physical features of the site (e.g., dimensions and locations of sources, buildings) and the surrounding area. Record any observations that differ from descriptions gathered through previous data collection (e.g., a new housing development not shown on the topographic map). Another important aspect of the site reconnaissance is to evaluate the need for a removal action. A removal action could include the stabilization or removal of wastes, fencing the site, or other emergency response activity that eliminates, controls, or otherwise mitigates an imminent and serious threat to the public health or the environment. Emergency response considerations are discussed in Section 2.6.

2.5.1 Preparing for the Site Reconnaissance

To prepare for the site reconnaissance, review what is known about the site and what remains unknown after conducting file searches (see the checklist of PA information needs, Figure 2-1). Decide whether to perform an onsite reconnaissance or an offsite reconnaissance, depending on considerations including:

- Regional EPA specifications for performing site reconnaissance during the PA.
- Type of site and operations.
- Amount of information available concerning sources.
- Status of the site (i.e., active or inactive).
- Age and reliability of the data available for review.
- Potential visibility of the site from public access areas.
- Relative ease or difficulty of obtaining site access.
- Health and safety concerns.

Consider whether an onsite reconnaissance is necessary and practical, given the specific situation for each site. Necessity and practicality are often contradictory. For example, an onsite reconnaissance may be deemed necessary for a site that is abandoned, not easily observed from areas of public access, and for which little information is available from file searches and desktop data collection activities. These same circumstances may make an onsite reconnaissance impractical from the perspective of health and safety -- in view of the many unknowns -- and the ability to gain legal access. On the other hand, an onsite visit may be most practical, but not necessary, for an active facility about which much is known, and whose operator cooperates in granting access and providing requested information.

To perform an onsite reconnaissance you must arrange site access and prepare an appropriate health and safety plan. You must obtain legal access to the site from the site owner before conducting an onsite reconnaissance. In some Regions, EPA is solely responsible for obtaining access. In other Regions, State and/or contractor personnel may make access arrangements. Obtain the proper procedure for gaining legal site access from your EPA site assessment contact, or follow your established in-house operating procedures (if available). Finalizing access arrangements

may take considerable time, so initiate actions to obtain access immediately after determining to conduct an onsite reconnaissance.

You must develop a study plan whether the reconnaissance is onsite or offsite. The study plan should enumerate all reconnaissance activities and identify the specific information to be gathered. In addition to observations of the site itself, these may include contact with local authorities, such as the tax assessor's office to verify ownership and site boundary information or the local water authority to gather water supply information. The study plan should also detail the survey of site surroundings and efforts that will be taken to verify or identify the nearest resident, worker populations, nearest well, and other site environs information.

Preparing for the site reconnaissance also includes gathering necessary materials and equipment, such as a camera to document site conditions, health and safety monitoring equipment (e.g., HNu, OVA, radiation meter), and extra copies of topographic maps to mark target locations, water distribution areas, and other important observations.

You also need a logbook to record observations and activities while in the field. Each PA investigation requires its own logbook, which is a standard reference for the PA narrative report (Section 4.2). Use the logbook to record such things as:

- Visual observations of the site and its surroundings
- Descriptions of photographs taken
- Conversations with site personnel or neighbors
- Visits to local authorities and information obtained
- Housecounts and other observations relating to targets
- Freehand site sketch

Record activities and observations in the logbook as they occur, rather than at the end of the day or when you are back in the office. Also record the time of day for each activity or observation entered. For documentation purposes, the logbook must be completed in waterproof ink, preferably by a single person. Each page of the logbook must be signed and dated after the last entry on the page. Figure 2-3 illustrates a sample logbook page.

2.5.2 Conducting Onsite Reconnaissance

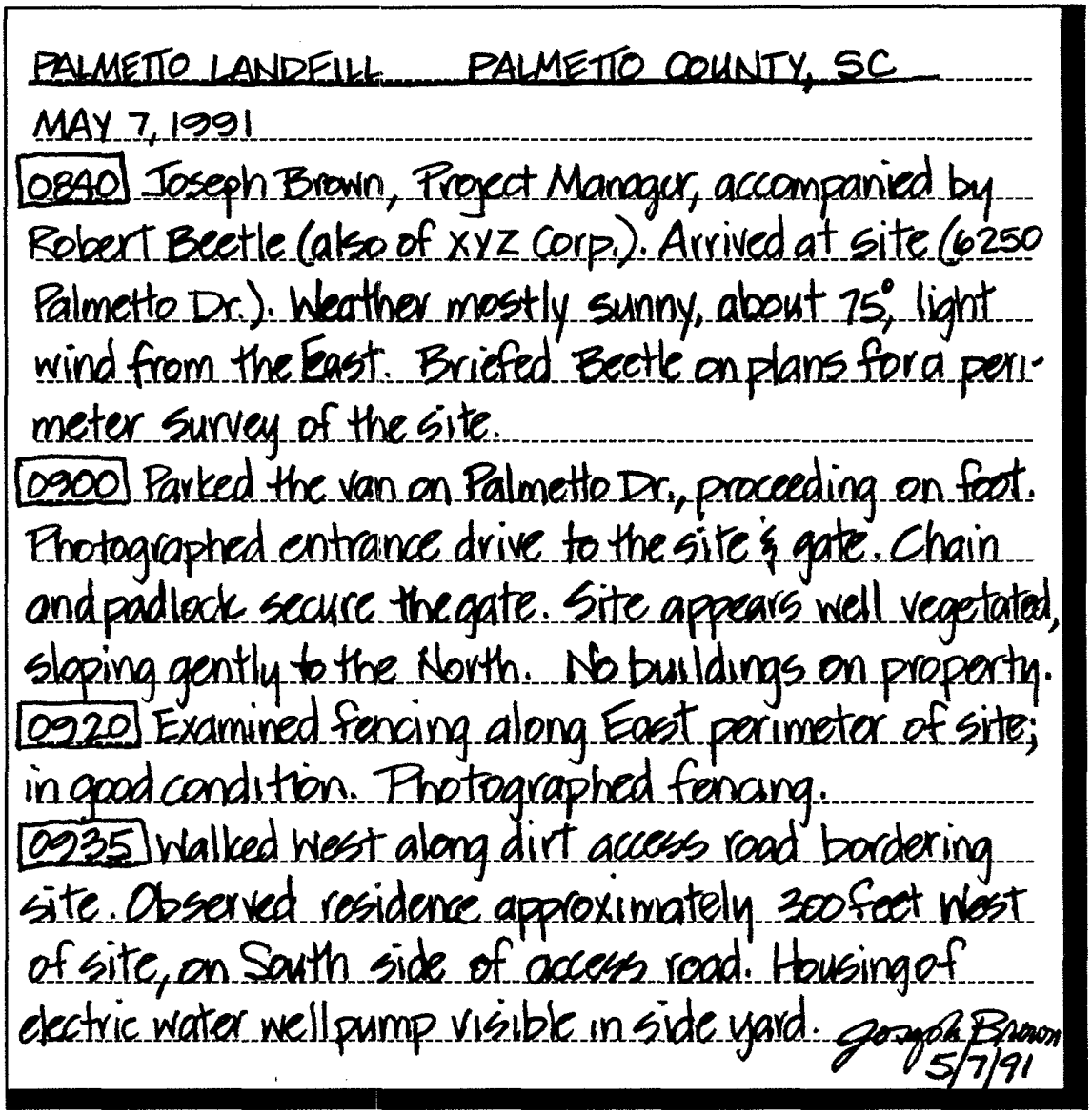
The major advantage of an onsite reconnaissance is the opportunity to visually observe the site and the sources. Characterizing the site and sources is a critical task in the site evaluation process. During the onsite reconnaissance, you may be able to estimate or measure source areas or volumes, examine facility files to obtain hazardous waste quantity data, observe waste handling practices, and possibly detect sources and targets (e.g., drum disposal area, onsite residents) not previously identified during file searches and desktop data research.

Source Characterization and Target Identification

During the onsite reconnaissance, concentrate on characterizing potential hazardous waste sources. Record in your logbook detailed descriptions of each source, including source type, location, dimensions, and evidence of containment. Look for signs of migration of hazardous substances from sources. Record descriptions of observed areas of stained soil or stressed vegetation.

Also identify any wells on the site, the location of any residences, schools or daycare facilities and the populations associated with each, an estimate of the number of workers if the facility is active, and the presence of any onsite sensitive environments.

Figure 2-3
Sample Logbook Page



PALMETTO LANDFILL PALMETTO COUNTY, SC

MAY 7, 1991

0840 Joseph Brown, Project Manager, accompanied by Robert Beetle (also of XYZ Corp.). Arrived at site (6250 Palmetto Dr.). Weather mostly sunny, about 75°, light wind from the East. Briefed Beetle on plans for a perimeter survey of the site.

0900 Parked the van on Palmetto Dr., proceeding on foot. Photographed entrance drive to the site & gate. Chain and padlock secure the gate. Site appears well vegetated, sloping gently to the North. No buildings on property.

0920 Examined fencing along East perimeter of site; in good condition. Photographed fencing.

0935 Walked West along dirt access road bordering site. Observed residence approximately 300 feet West of site, on South side of access road. Housing of electric water well pump visible in side yard. Joseph Brown 5/7/91

Additional Data Collection

During the onsite reconnaissance you may have the opportunity to review available facility records and interview site operators or workers. Look for documents that provide information on the types and quantities of waste produced and/or deposited. These may include waste hauling manifests, permits, and internal waste management records. When interviewing site representatives, attempt to gather information concerning past and present disposal practices as well as any past environmental problems. For example, ask if there have ever been any spills at the site, problems with contamination of onsite wells, health problems encountered by workers, or complaints from neighboring residents about odors or other types of environmental impacts.

Site Sketch and Photodocumentation

Prepare a sketch of the site in the logbook noting all important physical features. A drafted sketch of the site can be made from the hand-drawn site sketch upon returning to the office. Include in the sketch locations and dimensions of all sources, distances from sources to major site structures (e.g., buildings, site boundaries), locations and distances from sources to all targets (e.g., onsite residents, wells, surface water bodies, sensitive environments), significant site features (e.g., railroad beds, roads, parking lots, hills), and the drainage pattern and overland flow route to surface water. Also include a North arrow. Figure 2 in Appendix C shows an example site sketch.

During the reconnaissance, document source areas and any evidence of contamination (e.g., stressed vegetation, stained soil, leaking drums) with color photographs. Also take a series of photographs showing a panoramic view of the entire site. You can also use photographs to document other important aspects of the site such as fencing or proximity of residences and surface water. Print several copies of the photographs so you can include originals with each copy of the narrative report.

All photographs taken during the site reconnaissance need to be documented in sequential order in the logbook. Create a table in the logbook to record photograph information. Include the number of the photograph (e.g., number 12 of 36 on roll #1), the time taken, and a detailed description; key each photograph to the site sketch. An example entry is provided below (see also Appendix C, page C-17):

Roll Number 1, 36 photographs available

Number	Time	Description
1	0800 hours	Leaking drums in drum disposal area located on the far east side of the property. Photo taken while facing north.

Health and Safety Considerations

At all times during the onsite reconnaissance, you must be cognizant of health and safety concerns. Follow the health and safety plan developed for the reconnaissance and record any readings detected by monitoring equipment. Above-background readings on monitoring equipment may indicate that hazardous substances are being released to the air. Be prepared to go to a higher level of personal protective equipment, or to abandon the reconnaissance. Always be cautious when traversing a potential hazardous waste site.

2.5.3 Conducting Offsite Reconnaissance

An offsite reconnaissance should generally be performed at all sites, regardless of whether an onsite reconnaissance is also conducted. An offsite reconnaissance includes a perimeter survey of the facility, a local site environs survey, and collection of additional data from local authorities. In cases where you do not conduct an onsite reconnaissance, examine the site and its sources to the extent practical through a perimeter survey. Other main objectives are to:

- Verify target locations close to the site
- Gather additional information concerning the overland flow route to surface water
- Determine land uses in the vicinity of the site

Perimeter Survey

A perimeter survey consists of walking or driving around the property, but not actually entering. During the perimeter survey, attempt to obtain a view of the site from public access areas and record your observations in the field logbook. Be aware of private property rights and restrict your movements to public areas; do not trespass private property (either the site itself or neighboring properties) unless you receive permission from the property owner (either in writing in advance or verbally at the time of your visit).

The objectives of the perimeter survey are the same as those for the onsite reconnaissance. Concentrate on characterizing potential hazardous waste sources, including source types, dimensions, location, and evidence of poor containment. To the extent practical, estimate the area or volume of sources. Photograph the site and surrounding area for documentation purposes. Record photographs in your logbook according to the procedures discussed in Section 2.5.2. Record information concerning public access. Also look for evidence of hazardous substance migration from the site, including stressed vegetation, areas of visibly stained soil, or possibly an outfall discharging to a surface water body.

Site Environs Survey

The purpose of the site environs survey is to identify and verify the existence and locations of nearby targets. A windshield survey (i.e., a look around by car) of the surrounding area is useful for this purpose. As part of the windshield survey, perform a house count to obtain population estimates for areas near the site. Identify residential areas near the site that rely on private wells. Verify the overland flow route to the nearest surface water body; if possible, walk along the flow route and look for evidence of hazardous substance migration. Record any features of the surrounding area that may not be indicated on the topographic map, such as new housing, business, or commercial developments. Transcribe all of the information collected during the perimeter and local environs survey onto your local site environs sketch or topographic map.

Additional Data Collection

During the offsite reconnaissance, you may visit a number of local authorities to collect additional information. Local health departments may have information concerning inspections performed at the site, past complaints from nearby residents (e.g., odors, smoke, unsightly conditions), and health impacts attributed to the site. As discussed in Section 2.4.5, local water authorities may be able to provide water distribution maps or mark the location of public drinking water supply sources and distribution areas on a topographic map. In addition, water officials may provide information on private water wells in the vicinity. The tax assessor's office may have information regarding ownership and boundary history of the site, which may lead to the discovery of other hazardous waste sources not previously identified.

2.6 EMERGENCY RESPONSE CONSIDERATIONS

During the site reconnaissance, you must be alert for conditions that may warrant immediate or emergency action, and notify your Regional EPA site assessment contact of such situations. At any time during the site assessment process, a removal may be performed at a site. CERCLA and the NCP (40 CFR 300.415) authorize and generally define removals as actions taken to eliminate, control, or otherwise mitigate a threat posed to the public health or environment due to a release or threatened release of a hazardous substance. Removals are relatively short-term actions, as opposed to the long-term remedial solutions that the NPL addresses. They are designed to respond to situations that require immediate action to eliminate a present threat or to avoid a more serious

future problem (e.g., containerizing hazardous substances leaking from deteriorating drums may prevent ground water from becoming contaminated).

Removal actions can include, but are not limited to, any of the following (see "Superfund Removal Procedures," OSWER Directive 9360.3-01):

- **!** Fencing the site
- **!** Providing 24-hour security to restrict public access
- **!** Stabilizing waste sources such as leaking drums or overflowing surface impoundments
- **!** Physical removal of hazardous substances
- **!** Capping areas of obvious contamination
- **!** Assessing the need to temporarily relocate populations
- **!** Providing alternative drinking water supplies

Before EPA initiates a removal action, Emergency Response Division (ERD) personnel perform an assessment to determine if removal action is appropriate. The PA investigator is responsible for identifying sites that may warrant removal assessments; your Regional EPA site assessment contact, in consultation with removal program personnel, will determine whether a removal assessment is necessary.

Site conditions that may require immediate response or emergency action are likely to be obvious. For example, conditions that allow humans to easily come in direct contact with hazardous substances (e.g., unrestricted public access to areas with exposed hazardous substances) may warrant some form of emergency response, as would site conditions that allow continuous releases of hazardous substances into the environment (e.g., wet surface impoundments with inadequate overflow controls). Types of conditions that might lead to a removal assessment include, but are not limited to:

- **!** Threat of fire and/or explosion

    - unstable hazardous materials are stored onsite
    - reactive materials have been disposed of together
    - former military site with unexploded ordinance

- **!** Threat of direct contact with hazardous substances

    - unrestricted public access to exposed hazardous substances
    - runoff carries hazardous substances to publicly used surface water bodies
    - hazardous substances have migrated onto residential properties

- **!** Threat of a continuing release of hazardous substances

    - sources are poorly contained (e.g., deteriorating drums), possibly threatening ground water by releasing hazardous substances at or below the surface
    - surface impoundments with inadequate diking, located on the banks of a river prone to flooding

- **!** Threat of drinking water contamination

    - suspected release to ground water where private residences rely on shallow wells for drinking water
    - underground storage tanks may be leaking near a municipal well
    - private well users have reported foul-smelling and/or foul-tasting water

These are just a few examples of site conditions you should be aware of while conducting the PA, and especially during the site reconnaissance. These examples are not inclusive of all site conditions that might indicate the need for a removal assessment. However, not all conditions that pose threats can be addressed effectively by a removal (i.e., some sites can only be addressed with long-term remedial actions). Each site is unique and the need for a removal assessment must be based on site-specific conditions. If during the site reconnaissance you observe conditions that you believe require immediate action to mitigate a threat to public health or the environment, notify your Regional EPA site assessment contact as soon as possible to discuss the situation.

2.7 POTENTIAL RADIOACTIVE WASTE SITES

Radioactive waste sites pose special hazards for field investigators, and EPA discourages Superfund personnel from physically approaching such sites during a perimeter survey or onsite reconnaissance. Because of the unique considerations associated with radiation sites and the special skills required to evaluate and minimize radiation exposures, investigation of radiation sites beyond the PA is generally implemented by EPA's Office of Radiation Programs (ORP).

To date, the number of CERCLIS sites that involve radioactive materials has been relatively small; perhaps less than 2 percent. Radioactive materials are most commonly associated with types of sites that include, but are not limited to:

- Department of Energy (DOE) or Department of Defense (DOD) facilities.
- DOE or DOD contractor, supplier, or research facilities.
- Contractor, supplier, or research facilities of DOE predecessor agencies (Atomic Energy Commission, Energy Research and Development Administration).
- Private or public nuclear energy production or research facilities (e.g., power plant, university).
- Aircraft, submarine, or shipbuilding facilities.
- Mining and related facilities (e.g., production, milling, processing).
- Deep well injection facilities.
- Facilities that manufacture, store, dispose, or otherwise handle radiopharmaceuticals.
- Facilities employing industrial radiography.

If you are conducting an onsite reconnaissance or offsite perimeter survey and you encounter any reason to suspect the presence of radioactive materials, health and safety considerations require you to vacate the area immediately and notify your Regional EPA site assessment contact. Examples of reasons to vacate include:

- Above-background readings on a radiation meter.
- Presence of drums, other containers, or areas marked with the radiation symbol.
- Evidence (such as manifests, disposal records, or verbal statements) of radioactive materials handling, storage, or disposal.

You may find information relating to radioactive materials during earlier stages of the PA such as file searches or desktop data collection activities. Such information may include permits, permit

applications, manifests, materials handling or disposal records, and statements from officials or facility personnel obtained through interviews. If at any time during the PA you obtain information indicating that radioactive materials are or were present at the site, notify your Regional EPA site assessment contact immediately. Your contact will discuss the situation with ORP and determine how you should continue the investigation.